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Drag Reduction by Laminarization of Pulsating Turbulent Channel Flow KAORU IWAMOTO, Tokyo University of Agriculture and Technology, HIROSHI KAWAMURA, Tokyo University of Science, Suwa — Direct numerical simulations of a pulsating turbulent channel flow have been carried out at a friction Reynolds number of $Re_\tau = 110$ with high pressure gradient for laminarization. In the case of laminarization, the bulk velocity is increased since the Reynolds shear stress is decreased to zero. Finally, the mean velocity profile averaged over one cycle coincides with that of a laminar flow. It is found that laminarization occurs when the Reynolds shear stress of pulsating turbulent flow is lower than that of a steady turbulent flow at the critical Reynolds number of $Re_\tau = 56$.

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